T.E. (Comp & IT) VI (old)
Object Oriented Analysis & Design

Con. 3348–11. (OLD COURSE) RK–2370

(3 Hours) [Total Marks : 100

N.B. :

Note: 1.Question No. 1 compulsory.
2. Attempt any four from remaining six questions.

1. a) Explain the following with suitable example:
Aggregation, Generalization, Association, Multiplicity, Constraints. [10]
b) Draw a sequence diagram for ATM Banking system for Invalid pin use case. [10]

2. a) Explain different steps that are preformed in constructing an object model [10]
b) What is a model? What are different types of modeling? Briefly describe each. [05]
c) Describe Booch Methodology. [05]

3. a) Hospital Management System is a software system that tracks doctors, patients, case histories, bed allocation status, operation theatre schedules, doctor schedules, patient bills, drug inventory and reorder, medical equipment etc. Draw the class diagram for the above. [10]
b) What is the purpose of producing use cases ? Describe in your own words the difference between <<extend >> and <<include>> relationship in the use case diagram. [05]
c) Construct use case diagram for the above example (Hospital management system). [05]

4. a) Explain all testing techniques in detail. [10]
b) Explain coupling and cohesion in detail. [10]

5. a) Explain unified approach modeling with a block diagram in detail [10]
b) Construct interaction diagram and state diagram for handling local phone call [10]

6. a) State UML dynamic diagrams. Explain any one in detail with example. [10]
b) Construct an activity diagram for the computerization of your college library. [10]

7. a) Explain with an example how will you model a workflow using swimlanes. [10]
b) Explain deployment diagram for a client server system. [05]
c) Explain the uses of component diagram with an example. [05]

81/05/2017

T.E. IT VI (OLD)
Database systems.

P4 Exam-May-11-175

Con. 3179–11. (OLD COURSE) RK–2469

(3 Hours) [Total Marks : 100

N.B. : (1) Question No. 1 is **compulsory.**
(2) Attempt any **four** questions out of remaining **six** questions.

1 (a) Explain the three level architecture of DBMS. [10]
(b) What is normalization ? Explain 1NF,2NF,3NF,BCNF,4NF with example? [10]

2. (a) Explain following terms with example. [10]
(i) Weak entity (ii) Candidate key
(iii) Total participation (iv) Primary key
(b) Explain the Shado paging recovery scheme. [10]

3. (a) What are triggers? Explain with example. [10]
(b) Explain significant differences between a file-processing system and a DBMS. [10]

4. (a) Construct an ER diagram for a Library management system. [10]
(b) What is view in SQL ? How it is created ? Explain with example. [10]

5. (a) Explain Two Phase Locking Protocol. [10]
(b) Explain the deadlocks handling techniques in DBMS.

6. (a) Explain Conflict serializability. [10]
(b) What is transaction ? Explain it's state diagram.. [10]

7. (a) Explain aggregate functions in SQL. [10]
(b) Explain Security and authorization in SQL [10]

18/6/2011 TE IT VT (04)
D.S.P

P4-Exam.-May-11-224

Con. 2921–11. (OLD COURSE) RK–2475

(3 Hours) [Total Marks : 100

N.B. : (1) Question No. 1 is **compulsory**.
(2) Out of the remaining questions attempt any **four** questions.
(3) In **all 5** questions to be attempted.
(4) Answer to **each** new question is to be started on a **fresh** page.
(5) **Figures** in the **bracket** indicate the marks.

Q1. **(20)**

(a) Find the output of the system with impulse response h[n]={1, 2 ,3,5} on application of the input signal x[n]={3, 2,4}

(b) One of the zeros of a linear phase FIR filter is at $0.5 \angle 60$. Show locations of other zero. What is minimum order of this filter?

(c) Check whether the following systems are –
static or dynamic ,linear or nonlinear ,time variant or time invariant
causal or non causal
1) $y[n] = \cos[x(n)]$
2) $y[n] = x(n)\cos w_c n$
3) $y[n] = 4x[n] + 3$
4) $y(n) = x(n) + n\, x(n+1)$

(d) What is the relationship between Z transform discrete time fourier transform and DFT ?

Q2.

(a) Consider the analog signal-

$x(t)=3\cos 2000\pi t + 5\sin 6000\pi t + 10\cos 1200\pi t$ **(10)**

(i) What is the Nyquist rate for this signal.

(ii) Suppose, this signal is sampled at sampling rate Fs=5000 samples/sec. What is the discrete time signal obtained after sampling?

(iii) What is the analog signal if the reconstruction is done from above samples using ideal interpolation.

(b) A Casual FIR system has three cascaded block, first two of them have individual Impulse responses. **(10)**

$h_1(n)= \delta(n)+2\delta(n-1) +2\delta(n-2)$

$h_2(n)=u(n)-u(n-2)$

Find the impulse response $h_3[n]$ of a third block, if an overall impulse response is $h(n)=\{2,5,6,3,2,2\}$

Q3.

(a) A D.T. LTI system is described using a difference equation. **(10)**

$$y[n] = x[n]-\frac{1}{2}x[n-1]+y[n-1]-\frac{3}{16}y[n-2]$$

Find transfer function, sketch pole-zero plot , the impulse response of the system and show DF-I and DF-II realization

(b)A LTI system is characterized by the system function. **(10)**

$$H(z) = \frac{3-4z^{-1}}{1-3.5z^{-1}+1.5z^{-2}}$$

Specify the ROC of H(z) and determine h[n] for the following conditions :

i) The system is stable.

ii) The system is causal.

iii) The system is anticausal

Q4.

(a) Determine the convolution of following signals using z-transform. **(10)**

$x_1(n) = (1/3)^n u(n)$

$x_2(n) = \cos \pi/3n \; u(n)$

(b) $y[n] = x[n] + \frac{3}{2} y[n-1] - \frac{1}{2} y[n-2]$

$x[n] = \left(\frac{1}{4}\right)^n u[n]$ $y[-1] = 4$ and $y[-2] = 10$

Find zir, zsr, transient response , steady state response natural response and forced response

Q5.

(a) Find the DFT of x[n]={1, 2 , 1, 2, 5, 2 ,1, 2} using DITFFT **(10)**

(b) (i) $x(n) = \{1+5j, 2+6j, 3+7j, 4+8j\}$ Find DFT $X(k)$, using DIF FFT. **(10)**

(ii) Using results obtained in (i) and not otherwise find the DFT of the following sequences $x_1(n) = \{1, 2, 3, 4\}$, $x_2(n) = \{5, 6, 7, 8\}$

Q6.

(a) If $x(n) = \{1,2,3,4\}$ find DFT X(K). **(10)**

Using X(K) obtained above and not otherwise find the DFT of the following sequences.

$x_1(n) = \{4,1,2,3\}$

$x_2(n) = \{2,3,4,1\}$

$x_3(n) = \{3,4,1,2\}$

$x_4(n) = \{4,6,4,6\}$

(b) For a linear shift invariant system – **(10)**

h[n]={ 1 , 2 , 1}

Find the frequency response $H(e^{j\omega})$. Plot the magnitude and phase response.

Q7.

(a) The desired frequency response of LPF is : **(10)**

$H_d(e^{j\omega}) = e^{-3j\omega}$ for $\frac{-3\pi}{4} \le w \le -\frac{3\pi}{4}$

$= 0$ $\frac{3\pi}{4} < |w| < \pi$

Determine $H(e^{j\omega})$ for M = 7 using Hamming Window.

(b) Design a digital Butterworth filter to satisfy the constraints, **(10)**

$0.9 \le |H(e^{j\omega})| \le 1$, $0 \le \omega \le 0.2\pi$

$|H(e^{j\omega})| \le 0.2$, $0.5 \le \omega \le \pi$

Use bilinear transformation and assuming $T = 1$sec

14/6/2011

T.E. IT VT (Old)
Internet Technology & App.

P4-Exam.-May-11-180

Con. 3237-11. **(OLD COURSE)** **RK-2466**

(3 Hours) **[Total Marks : 100**

N.B. : (1) Question No. 1 is **compulsory**.
(2) Attempt any **four** questions from the remaining **six**.
(3) Draw neat **figures** and **tables** to support your answers.
(4) Assume **necessary** data if **needed**.

Q. 1 Write Short Notes on the following

A. Routers and Gateways 05

B. Client Server Architecture 05

C. Simple Mail Transfer Protocol 05

D. Cryptography 05

Q. 2

A. Explain Various types of Lists; writing an example HTML code for each. 10

B. Explain Cell spacing and Cell padding with example 05

C. Explain the use of Framing. Write an HTML code to create Row-wise frames 05

Q. 3

A.	Create a Feedback Form asking for details of the user as name address, age, birthday, email id, phone number etc. and suggestion and perform validation on the data.	10
B.	Explain XML and XSL with an example	10

Q. 4

A.	Compare Active server Pages and Java Server Pages.	05
B.	Compare Client Side and Server Side Programming.	05
C.	Explain Cookies in ASP. Write code to create and retrieve a Cookie	10

Q. 5

A.	Explain Telnet and rlogin. State the use of Firewall	10
B.	Explain Email Protocols and Differentiate them.	10

Q. 6

A.	Explain Electronic Data Interchange	10
B.	Explain architecture elements of Ecommerce	10

Q. 7

A.	Explain Public Key Encryption	05
B.	Explain Kerberos authentication	05
C.	Explain Digital Certificates	10

9/6/2011

TE IT VI (Old)
Systems Software & Operating Systems

Con. 3493-11. (OLD COURSE) RK-2472

(3 Hours) [Total Marks : 100

N.B. : (1) Question No. 1 is **compulsory**.
(2) Attempt any **four** questions from the remaining **six** questions.
(3) Assume **suitable** additional data if **required** state and **justify** the assumption made.

1 (a) Explain the working of two pass assembler with neat flowchart and Description of various Database used (10)

(b) What is scheduler? Describe short term, midterm and long term scheduling when the Schedulers are involved with neat diagram? (10)

2 (a) Explain Macro and database for 2 pass Macro? (10)

(b) Explain the design of direct linking loader? (10)

3 (a) Explain the code optimization phase of a compiler? (10)

(b) What are the four conditions that create deadlock? Explain Deadlock preventation and Deadlock avoidance? (10)

4 (a) what is Virtual Memory? Explain with neat sketch the translation of virtual address into Physical address in a segmentation/paging system? (10)

(b)Describe the working of direct linking loader? Explain in details various data structure Used? (10)

5 (a) Explain in details with diagram page segmentation? (10)

(b) What is parsing? Differentiate top-down vs. bottom-up parsing method? (10)

6(a) Discuss different types of file organizing method also suggest suitability of a scheme For the kind of data (10)

(b) Explain operating system with multiprogramming multitasking and multiprocessor features (10)

7. Write short notes on (any four) ; (20)

(a) Cross compiler

(b) Pre-emptive scheduling

(c) Interprocess communication

(d) Debug monitor

(e) System calls and driver.

4/6/2011

TE IT VI (old)
Software Engineering

84-mk : 1stHf-11.

Con. 2903-11. (OLD COURSE) **RK-2463**

(3 Hours) [**Total Marks : 100**

N.B. (1) Question No. **1** is **compulsory**.
(2) Attempt any **four** questions out of remaining **six** questions.
(3) **All** questions carry **equal** marks.
(4) Assume **suitable** data if **necessary**.

1. (a) What is a Software Development Process ? Explain the Software Development Activities in detail. 10
   (b) Explain how size oriented metrics differ from function oriented metrics. Discuss the pros and cons of each. 10

2. (a) What is Project Planning ? What are the steps in Project Planning ? 10
   (b) What is Risk identification ? Explain the risk types in detail. 10

3. (a) Explain the various testing strategies. 10
   (b) Explain the fundamental Software Design Concepts. 10

4. (a) Explain the Data Flow Diagram in detail. 10
   (b) Discuss and compare the Coupling and Cohesion in brief. 10

5. (a) Explain risk identification, risk projection, RMMM plan in detial. 10
   (b) What is Quality Assurance ? What are different parameters of quality ? 10

6. (a) What are different types of maintenance ? Give examples of each. 10
   (b) What is feasibility study ? Explain its type, contents and purpose. 10

7. Write short notes on (any **two**) :— 20
   (a) Architectural Design
   (b) Software Requirements Specification
   (c) Reengineering
   (d) CMM and Key Process Areas.